HAMATEUR CHATTER

The Milwaukee Radio Amateurs Club

September 2010, Volume 18, Issue 9

One of the World's Oldest Continuously Active Radio Amateur Clubs—since 1917

Presidents Letter

Well, in what looks like it will become a regular feature, I must report the death of yet another MRAC member. Joe Rayome KE9LL passed away back in June. Joe had lived in Upper Michigan since retiring in 2006. Joe was a director in the 80's, edited the Chatter in the early 90's and helped teach the Tech class also in the early 90's (one of the few people who volunteered and didn't require arm-twisting). His involvement in the club decreased when his job took him to 2nd shift. By the way, this makes 5 present and former members passing in 2010.

After taking the summer off (just like the club used to prior to about 1990) we are ready to get back to action with the September meeting. And the meeting should be a good one. Often, hams say we should get young people interested in amateur radio. Well the best audience of young people who could become interested in amateur radio are those that are already geeks. Come to the September meeting and meet some of those high school age electronics geeks, students who participate in the FIRST Robotics programs (which take place across the country and around the world). Meeting starts promptly at 7. Don't be late to see a good program.

While the membership took the summer off, the board met in August, primarily to discuss some changes to the by-laws in order to maybe make sure there are officers to make the club legal. I also want to reinstate Student membership (with FREE dues). We may have some changes to discuss and vote on by the end of the year, stay tuned. Anything you want changed/added in the by-laws? Now's your chance.

Also discussed at recent board meetings is our partnership with MAARS (145.13 repeater group). The first event from this partnership is the Christmas Party. December 5 at Meyer's Restaurant. See Al KC9IJJ for details. There are more things to come, but I am limited for space for right now to describe everything. Follow the Yahoo group, come to club meetings, check into the Friday night 2M net for more info.

The club exists for its members. Not for just me or anyone else, but for all members. Besides my waiting for member comments as I asked for in last month's Chatter (don't all speak up at once), I have another request. We need to get some committees in operation to take care of various club functions.

The board's function is not to do all the work for the club. The members should be participating and committees should be doing the detail work.
Toward that end it's time to get some new committees off and running. I say new as we have had a VEC committee and an FM Simplex Contest Committee. First is an easy one. We have 2 weekly nets. Both are on Friday nights.
One on 10M and one on the repeater. For quite some time now Poncho, KA9OFA has been handling both nets just about every week. Now he may enjoy running the nets, but 2 nets, every Friday evening? Come on people. Give the guy a break. There should be a committee to oversee the nets and to have a schedule of rotating net controls. Many times I have heard people complain about not being able to get out and around to do some club function. Here's one which can be done right from your home, right in front of your radio.

MRAC Officers:

Terms Expiring in 2010

- President – Dave, WB9BWP
- V-President-Vacant
- Secretary – Mike, KC9CMT
- Treasurer – Vacant
- Director – Mark, AB9CD
- Director – Dave,KA9WXN

Terms Expiring in 2011

- Director – Al, KC9IJJ
- Director – Hal ,KB9OZN
- Director – Vacant

The Club Phone Number is: (414) 332-MRAC or

(414) 332- 6 7 2 2

Visit our website at:

www.w9rh.org

Mail correspondence to:

M. R. A. C.

P.O. Box 240545

Milwaukee, WI 53223

Presidents Letter Continued:

Now and I mean NOW, we need a Field Day committee. There are decisions which need to be made by the end of this year regarding where, how, and if we do Field Day. Yes I said where. I am tired of hearing complaints about Field Day being too far away. If you think it is, then you find a place closer. Here's your chance (put up or .). Be on the committee. Last year Mark was too lenient in not getting a Field Day Chairman. I won't be. No committee, no Field Day. The committee gets to decide everything. No pre-existing conditions. We need this taken care of by the end of the year as Ozaukee County Historical Society (keepers of Pioneer Village) need to be contacted one way or the other in January, so decisions must be made before then (and if we don't use the facility, I have already talked to another group about their using it).

Another committee which must make some decisions soon is a committee for a possible 95th anniversary of MRAC. January 2012 is the anniversary date. Before you think that is so far off, consider there are only 11 club meetings (12, but one is the auction) between now and Jan 2012. Are we going to do something? If so, what? In 2002 we did an 85th on air event and made 650+ contacts (and sent out electronic certificates!). For the 90th, a committee was formed but never met. As a result, an on air event was attempted but only about 60 contacts were made.

I would like to see at least 2 or 3 people for each committee to get started (plenty of worker types are always needed). The committee members determine the committee chairman. Committee chairmen will regularly report their progress to the board. I expect to see some volunteers. If no one steps up I'll have to ready a new set of rants to describe the state of the current club membership. Don't make me do that.

Here is your chance to get the club you want (or deserve). Step up and serve on a committee.

Dave, WB9BWP

NEW DUES POLICY

New members paying dues on or after our September meeting will be considered paid in full for the following year.

Board of Director's Meeting Minutes

Meeting called to order at 7:02 PM.

Present: Mark, AB9CD, Dave DeFebo, WB9BWP , Brian, K9ICQ, Michael, KC9CMT., Dave, KA9WXN, Hal, KB9OZN, AL, KC9IJJ.

Absent: Dwain, KC9MJJ.

Motion to accept Meeting Minutes as published in the HamChatter Made by Dave, WB9BWP, Seconded by Michael, KC9CMT. Accepted by a vote of 6-0

Treasurer Report read by Mark, AB9CD,$14,556.19 total in General fund as of the end of July. Motion to accept treasurers report as read made by: Hal, KB9OZN, Seconded by: Dave, KA9WXN. Minutes from Treasurer accepted by a 6-0 vote.

PRELIMINARY DISCUSSIONS:

Xmas Party set for Sunday December 5th at Meyer's in Greenfield. Form needed for sign up sheet. Xmas party will be combined with the 145.130 MAARS club. Al, KC9IJJ to make up flyers for insertion into Chatter and to handout.

Repeater Report:

Nothing new to report on the repeater during this meeting.

Old Business:

Club Officers: Club still in need of Treasurer, Vice-President and a Director. Much discussion during this meeting regarding the restating of the clubs by-laws to facilitate the orderly appointment of club officers from the ranks of Club Directors. Dave DeFebo, WB9BWP to work on re-writing the by-laws.

2011 SwapFest: Dave Shank, KA9WXN will head committee . Channel 10/36 auction site at 126th & Townsend in Brookfield put forth by Dave as a possible site. This item tabled until the September board meeting.

The Chatter: Instead of Email Attachments in 2010, perhaps send Email link to Yahoo Group chatter posting. Link to chatter will be announced during membership meeting. This is still an ongoing project.

Club Badges: The Club Badges will be yellow on a blue background with the choice of backing closure. Club badges have been ordered and are in House for delivery. See Mark, AB9CD for your badge if you have one on order.

Programs:

September: Students from local school to present program on robotics.

November: Open.

December: No meeting scheduled.

January: Open.

New Business:

Club Project: Search for project that membership can work on and discuss during meetings. Ideas given: De-populate circuit boards, build simple circuits, or build a crystal set during a meeting.

By-Laws Change: Historically only Director's were elected. Change to current format made in 1951. Club President wants to change back to old format of only elected Directors, officers coming for the ranks of the Board of Directors.

Board of Director's Minutes Continued:

Committees: The formation of committees to take over some functions of the board of directors was discussed during this meeting. Committees would report to the Board of Directors. More discussion on this subjects expected during the nest meeting.

Preliminary discussions undertaken to begin cooperation with the MAARS club on activities and programs. More discussion on this subject to follow.

Motion to adjourn at 8:52 PM . Motion made by Dave. KC9WXN, Second by Dave, WA9WXN. Passed without dissent by a vote of 6-0.

Room returned to condition as found upon arrival.

Respectfully submitted,
Michael, KC9CMT

ARRL Weekly Newsletter Articles

Get Ready for the 2010 Simulated Emergency Test

The 2010 ARRL Simulated Emergency Test is just around the corner and ARRL Field Organization leaders are planning an event that will actively involve members of the Amateur Radio Emergency Service ®, the Radio Amateur Civil Emergency Service, the ARRL National Traffic System and many other related groups that prepare for and respond to emergencies. Public service and emergency response agencies and organizations in your community, ARRL Section Leaders and/or local and state officials will also be invited to participate. You, too, are invited to be a part of this annual tune-up for emergency response. Read more here

News from Wisconsin Ares/Races Network

WISCONSIN: SM: Don Michalski, W9IXG, SEC: W9REL, STM: K9LGU, SGL: AD9X, OOC: KC9IS, PIC: KB9NUM, TC: K9GDF, BM: WB9NRK, ACC: N9LVS. ASMs: K9UTQ, W9DGI, N9VE, KG8CX, KB9ENO, W9GOC.

** Regretfully, I am informing you of the passing of these Wisconsin Amateurs:

- Thomas McKinney - KC8JKS, 73.
- Robert "Bob" Rieck, N9TCA, 64. Bob was a member of Eau Claire ARC.
- Mark Drause, N9OHQ, 50.
- Raymond Dietzler, W9HUT, 94. Ray was a past member of Eau Claire ARC.

Ready, SET, go!

FAQ #109 - SET? SET? Aren't we already set? Let's find out. The State's annual Simulated Emergency Test will be held on Saturday, October 2, starting at 9 A.M. This ARES/RACES exercise is intended to use and perhaps overload the system with traffic because ARES and the NTS work in tandem to serve.

This year's scenario is certainly appropriate for Wisconsin -- a widespread power outage. This simulated emergency will be happening in several northern counties spreading across Wisconsin north of Highway 29 where communications will be through repeaters with emergency power or VHF/UHF simplex, Winlink or APRS and HF from stations with emergency power.

The traffic directed to the State net coming from these impacted counties will be mutual aid requests seeking communicators to relieve their people who have been assisting local public safety agencies to assist in relaying safety/welfare messages. There will be simulated requests for equipment such as generators and communications vehicles. These counties will need local resource nets to schedule volunteers for assignments in their counties and to assist their neighbors. Messages will need to advise of frequencies/tones for the wide-area repeaters still in service, current status, etc. The rest of the state will respond and support. For information on points to be earned, see http://www.arrl.org/public-service-field-services-forms, and to prepare, be sure to talk with your county's EC.

This is an excellent chance to practice our traffic-handling skills. There are plenty of hints on the Wisconsin page of the ARRL web site -- and in the NTS Manual at ARRL. Now's a great time to review. Please include the word "test" after the precedence in the preamble and the phrase "test message" as the first words of the text. Prepare, send, relay, and deliver as many messages as you can. Offer to serve as liaison between nets or as a relief op for a net control. Do it. It's what we do.

73 -- K9LGU/STM-WI

Contesting News: September-October 2010

Discover the Fun of 6 Meters (and Up!) in the ARRL September VHF QSO Party

September is here, and according to ARRL Contest Branch Manager Sean Kutzko, KX9X, that means the VHF bands are getting a workout: "If you've never experienced the fun of VHF+ operating, the ARRL September VHF QSO Party is a great place to start. Read more here.

ARRL FALL SPRINTS,

http://www.svhfs.org/2010fallsprintrules.pdf

(Remember, all modes are fair game in the Sprints.)

Contest Period:

The 144 MHz Sprint will be from 7 PM to 11 PM local time on Monday September 20, 2010.
LOG is due by October 20, 2010. Exchange is 6 Digit Grid Square !

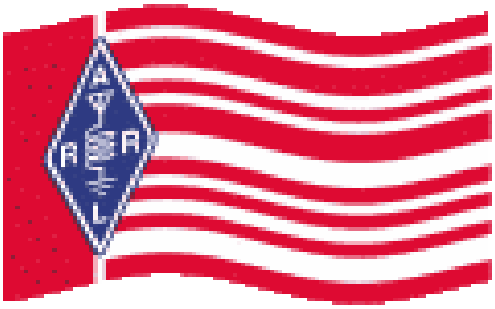
The 222 MHz Sprint will be from 7 PM to 11 PM local time on Tuesday September 28, 2010.
LOG is due by October 28, 2010. Exchange is 6 Digit Grid Square !!

The 432 MHz Sprint will be from 7 PM to 11 PM local time on Wednesday October 6, 2010.
LOG is due by November 6, 2010. Exchange is 6 Digit Grid Square !!

The Microwave (902 MHz and above) Sprint will be from 6 AM to 12 PM local time on Saturday October 16, 2010. The Microwave Sprint is one Sprint and certificates will be awarded for highest total score. LOG is due by November 16,2010.

Exchange is 6 Digit Grid Square !!
The 50 MHz Sprint starts 2300 UTC Saturday, October 30, 2010 and ends 0300 UTC Sunday, October 31, 2010.
LOG is due by November 30, 2010.

Exchange: Call signs and Grid-square locator. Signal report optional. 432MHz and microwave require all 6 characters of the grid square. Such as EM94LV.



Next Regular Meeting

The next meeting will be September 30rd at 7:00PM. We meet in the Fellowship Hall of Redemption Lutheran Church, 4057 N Mayfair Road. Use the south entrance.

Please do not call the church for information!

Club Nets

Please check in to our nets on Friday evenings.

Our ten meter SSB net is at **8:30 p.m.** at **28.490 MHz USB.**

Our two meter FM net follows at 9:00 p.m. on our repeater at **145.390 MHz** with a minus offset and a **PL of 127.3 Hz.**

You don't have to be a member of the club to join us!

Visit our website at: **www.w9rh.org**

Or phone (414) 332-MRAC or 332 - 6722

Chatter Deadline

The **DEADLINE** for items to be published in the **Chatter** is the 15th of each month. If you have anything (announcements, stories, articles, photos, projects) for the Chatter, please get it to me before then.

You may contact me or Submit articles and materials by e-mail at: **Kc9cmt@earthlink.net**

or by Post at:

Michael B. Harris

807 Nicholson RD

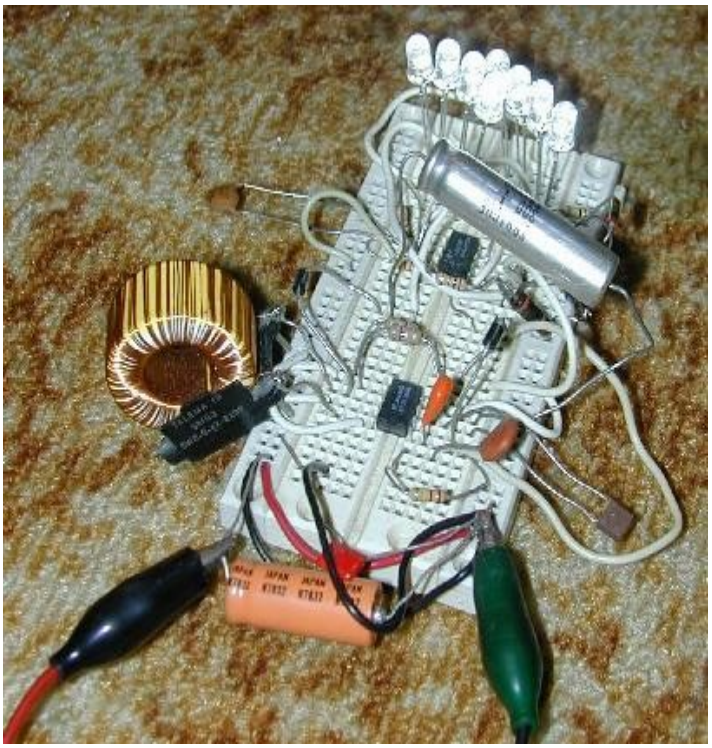
South Milwaukee, WI 53172-1447

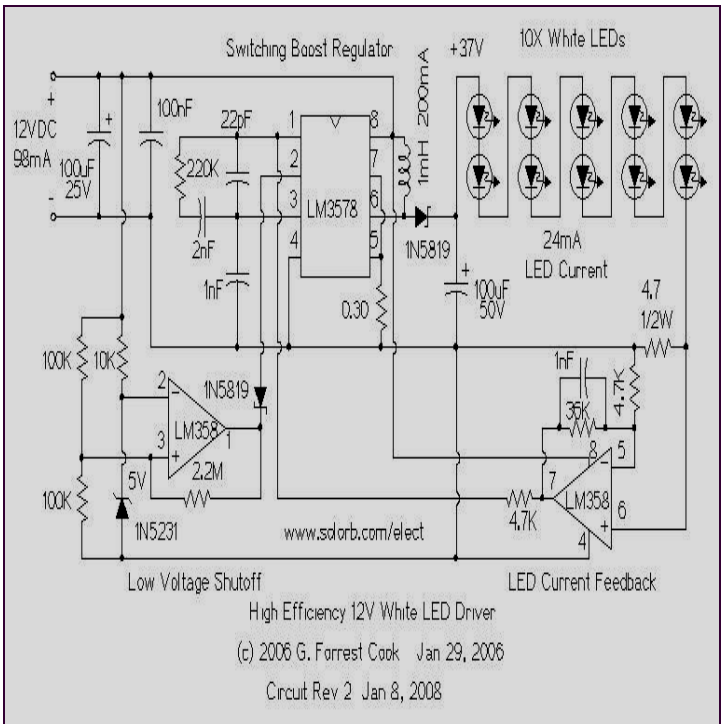
Club Repeater, 145.390Mhz Minus Offset (127.3 PL)

Experimenter's Bench

High Efficiency 12V White LED Driver

(C) G. Forrest Cook February 3, 2006





Introduction

DC powered LED lighting circuits can vary from trivial single LED/series resistor combos to simple analog current regulators to more complicated switching power supply circuits such as this project. There is a tradeoff between simplicity and circuit capabilities. This more complex circuit adds features such as regulated light level across a wide range of input voltages and automatic circuit shutoff on low input voltage. By using a high frequency switching regulator, the power loss associated with the current dropping resistors found in simpler circuits is reduced. This offsets the power consumed by the circuit's active parts. This circuit can power 10 white LEDs at 24mA of current with only 98mA of input supply current when running on 12V. LED intensity is fully regulated across the entire operating voltage range.

This circuit was inspired by F. Garcia's IR LED video illumination circuit, published in the July 2001 edition of Nuts and Volts magazine. I modified the LED count and feedback circuit, and added the important low voltage shutdown feature.

Specifications

Power Requirements:
Operating Voltage: 10-18V DC
Operating Current: 98mA @ 12V DC (10 LEDs)
Current at low voltage shutoff point: 5mA

Theory

The heart of the circuit is a string of 10 white LEDs. These are wired in series and connected to a current-regulated step-up switching power supply circuit.

The LM3578 switching regulator and its associated inductor, 1N5819 Schottky diode, and 100uF 50V capacitor step the 12V power supply up to a higher DC voltage. The voltage is approximately 3.7 X the number of LEDs. The 4.7 ohm resistor on the cathode end of the LED string develops a voltage that is proportional to the current through the LEDs. This voltage is amplified by half of the LM358 op-amp and sends a negative feedback signal through a 4.7K resistor back to the LM3578. The 36K feedback resistor across the LM358 sets the LED series current to approximately 24mA. Not all general purpose op-amps will work in this circuit, the LM358 can operate from a single-rail power supply with both input pins near 0V.

The other half of the LM358 (pins 1,2,3) is wired as a 10V voltage comparator. The 1N5231 zener diode and 10K series resistor produces a steady 5V on pin 2 of the LM358. The two 100K resistors on pin 3 of the LM358 divide the input voltage in half. If the supply voltage drops below 10V, the output of the LM358 drops, and pulls pin 2 of the LM3578 down through a 1N5819 Schottky diode, causing the LM3578 to shut down. A Schottky diode is used instead of a standard silicon diode in order for the LM3578 pin 2 voltage to go low enough to disable the circuit. Without the low voltage shutdown circuit, the LM3578 current will increase as the supply voltage decreases until the IC self-destructs.

The 2.2M resistor across the LM358 produces a hysteresis effect for the low voltage shutoff. The circuit turns off about .25V below where it turns back on, this prevents oscillation around the shutoff threshold. Below the low voltage shutoff point, the circuit will consume about 5mA of current. An interesting characteristic of this circuit is that it acts as a

negative resistance at the power supply terminals. As the supply voltage is increased, the current will drop. The total power consumption stays nearly even across changing input voltage conditions.

Use

Just connect the circuit to a 12V DC power supply, such as a solar charged lead acid battery. The light level will remain constant through the battery voltage change, and the circuit will consume a minimal amount of power.

It is possible to vary the number of white LEDs in this circuit from 8 to 12, as the LED count goes up, so does the regulator's output voltage and input current. Numerous readers have asked me if this circuit can drive more than 12 3.7V white LEDs, 12 white LEDs is about the maximum upper power limit for the LM3578 IC. If you are driving lower voltage LEDs such as 1.4V IR or red parts, the series string can have up to 30 LEDs.

Parts

1X LM3578AN switch-mode voltage regulator IC
1X LM358P dual op-amp
1X 1N5231 5V zener diode
2X 1N5819 Schottky diodes
10X high intensity white LEDs
1X 100uF 25V electrolytic capacitor
1X 100uF 50V electrolytic capacitor
1X 100nF 50V ceramic or MLCC capacitors
1X 2nF 50V ceramic or MLCC capacitor
2X 1nF 50V ceramic or MLCC capacitors
1X 22pF ceramic disc capacitor
1X 0.3 ohm 1/4 W resistor (Substitutes: 3X 1 ohm or 2X 0.62 ohm 1/4W resistors in parallel)
1X 4.7 ohm 1/2W resistor
2X 4.7K 1/4W resistors
1X 10K 1/4W resistor
1X 36K 1/4W resistor
2X 100K 1/4W resistors
1X 220K 1/4W resistor
1X 2.2M 1/4W resistor
1X 1mH 200mA switching power supply inductor
Inductors that are known to work:
Mouser part 851-CDRH74NP-102MC (Sumida SMD)
Digi-Key part TKS3504CT-ND (Toko 875FU-102M=P3)

Power this project from sunlight with a CirKits solar power circuit board kit from FC's Solar Circuits.

Early Historical Developments in Amateur Radio:

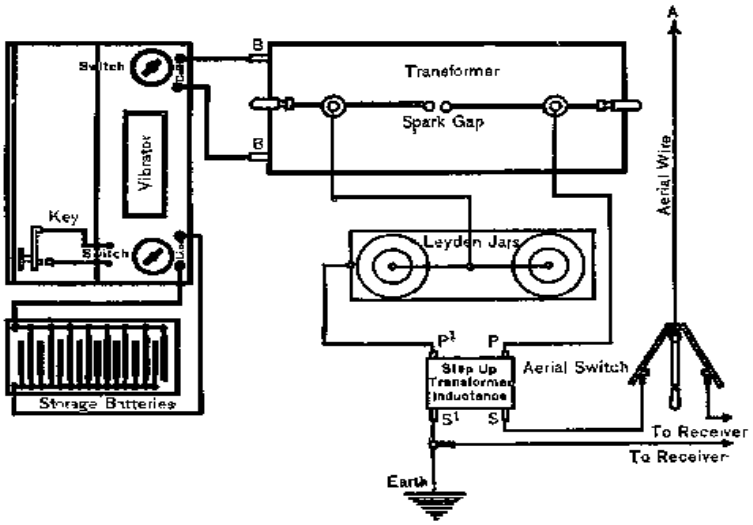


FIG. 55.—Clark Portable Army Set.

Manual of Wireless Telegraphy, A. Frederick Collins, 1906, pages 97-99:

Wiring Diagram of a Complete Clark Transmitter.--For the Army the apparatus is made as compact and portable as possible so that it may be transported on the backs of mules or if necessary may be carried by men. The transmitter shown in Fig. 55 is one form of the apparatus used. The transmitter comprises three units or cases containing the apparatus besides the storage battery, aerial wire, and kites. The cases are made of oak and are provided with strong shoulder straps for carrying them. The first case contains the induction coil, and its dimensions are 8½ inches in height, 21 inches in length, and 8½ inches in width; it weighs 60 pounds. The second case contains the key, interrupter, etc.; this case is arranged to fold back and allow ready access to the operating parts. The outside measurements are 8 inches in height, 16 inches in length, and 9½ inches in width, while its weight is 30 pounds. The third case contains two half-gallon Leyden-jars carefully mounted within it, a step-up transformer, and inductance oil with the aerial switch and ground-plug connections. These are arranged in the top of the case, which is divided into compartments, with a shelf, the latter being used to support the rear part of the case for the step-up transformer and inductance coil. This coil is supported on hard-rubber pillars placed in sockets at the bottom of case. Its size is as follows: 15½ inches in height, 20½ inches in length, and $7^{3}/_{4}$ inches in width, the whole weighing 20 pounds. The figure represents the top elevation of the apparatus, the only connections shown being those exposed when the cases are open and those connecting the different cases. The storage battery is connected with the binding posts, marked "Line," of the case containing the key and interrupter; from the binding posts of this case, marked "Coil," these devices are connected to the binding posts of the primary of the induction coil. From the standards supporting the spark-gap balls a high-tension circuit is formed by connecting one side to the inner coatings of the pair of Leyden-jars and the opposite side of the spark-gap to the binding post of the case containing the step-up transformer and inductance coil, marked *P*. The outer coatings of the Leyden-jars are connected to the binding post marked *P'*. From this case the terminal marked *S* leads to one side of the aerial switch, and the opposite terminal, marked

terminal marked *S* leads to one side of the aerial switch, and the opposite terminal, marked *S'*, leads to earth.

Pages 116-117:

Diagram of a Clark Portable Receptor for Field Work. --This set is used to a considerable extent in the Army. It consists of an oak case enclosed in a weatherproof canvas bag strapped down and provided with a heavy leather handle for carrying. It is not necessary to remove the oak case from the canvas bag to receive, though where possible it is better to do so. The receiver-case is divided into two parts, namely, the case itself and the top or cover. The top is held down by two catches on the sides, and fastened at the back by a pair of hinges. On the top of the cover all the receiving instruments are mounted and wired on the under side, so that the wiring is all concealed. This receptor is provided with a simple microphone detector, or auto-coherer, the conductor-plugs of which are made of steel and the granules in the pocket, of carbon. This is mounted in a pair of standards supported on a hard-rubber base, and is connected in series with a pair of head telephone receivers.

This receptor set is supplied with a call bell having an ordinary coherer and a relay, and the connections are so made that by inserting a plug in the circuit the filings, coherer, and relay are cut out, and when the plug is withdrawn from the spring-jack the filings, coherer, and relay are cut in. Diagrams of the connections are shown in Figs. 66 and 67, the first representing a wiring diagram for a shunt-circuit receptor, and the second for a potential-circuit receptor. The aerial wire may be connected plain as shown, or, better, through a tuning inductance coil. These diagrams may also be used with the Massie microphonic, Fessenden electrolytic, de Forest responder and other auto detectors. The shunt diagram shown in Fig. 66 is best adapted for microphonic coherers, and the potential diagram in Fig. 67 for electrolytic and other types of detectors.

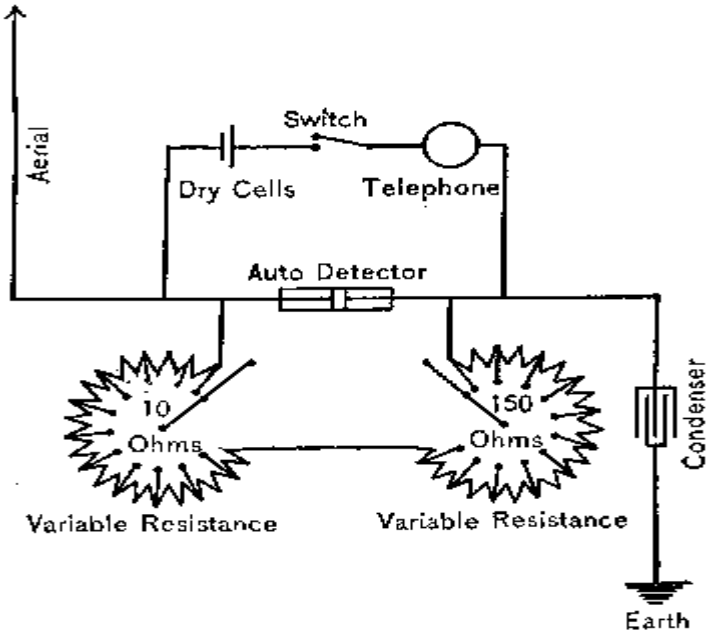


FIG. 66.—Wiring Diagram for Receptors with Auto-detector. Shunt Circuit to be Used with Electrolytic Detector.

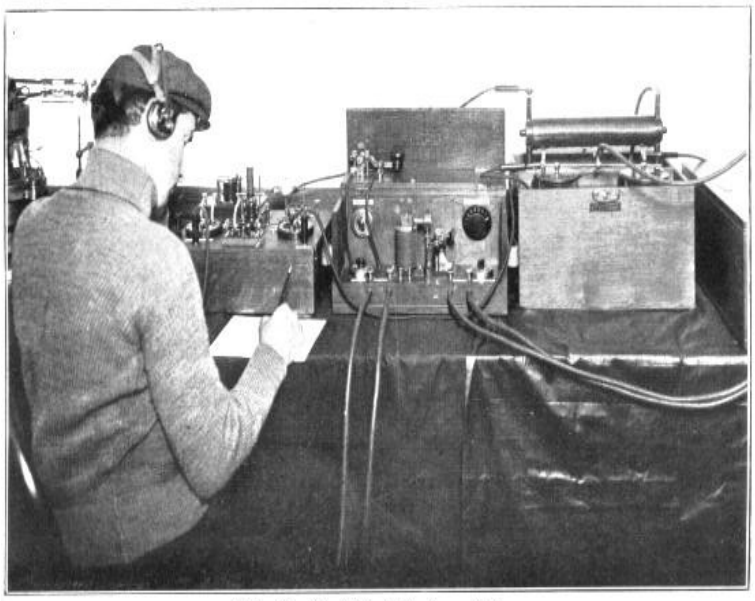


FIG. 87.—Clark Portable Army Set.

The Clark Portable System.--This is the portable system described in previous chapters. It was designed by Mr. Thomas E. Clark and is manufactured by the Clark Engineering Company of Detroit, Michigan. Many sets have been purchased by the Signal Corps of the United States Army, and it is used to some extent in the United States Navy.

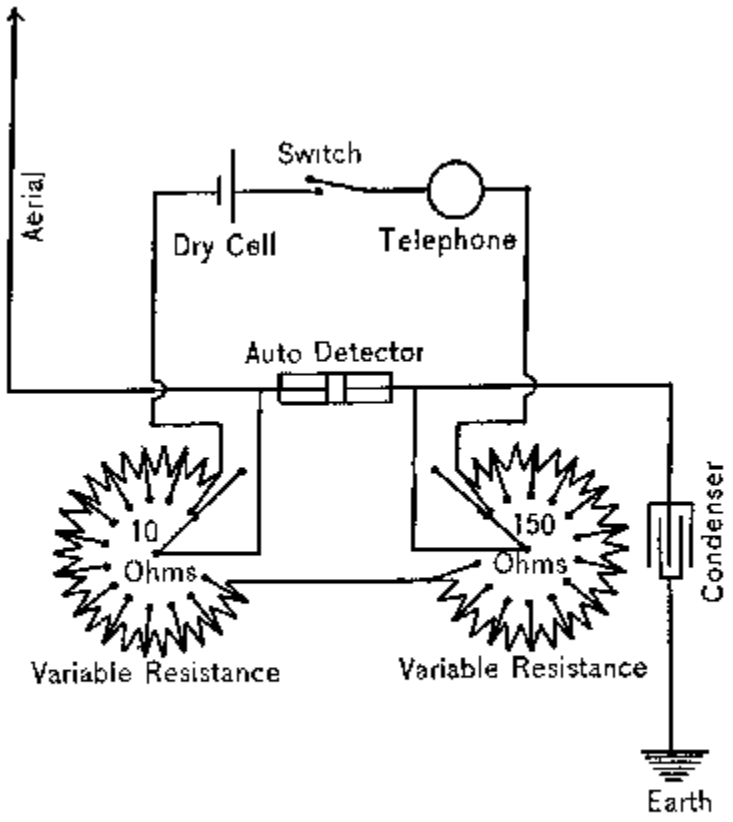


FIG. 67.—Wiring Diagram for Receptor with Auto-detector Potential Circuit best adapted to Microphonic Detectors.

Testing & Local Swapfests

VE Testing

Next VE Testing on September 25th 10:30 am-12:30 am at:

Amateur Electronic Supply 5720 W. Good Hope Rd. Milwaukee, WI 53223.

Next Area Swapfest:

** Milwaukee Repeater Club Swapfest

Nov. 6th is the date of the **26th annual AMATEUR RADIO FEST** and you are all invited. It is at the same location as last year. 5555 W. Good Hope Road. The Elk's Lodge across from AES.
The time is from 8 AM until 2 PM.
Your contact persons will be KC9MXZ {Ken} at 414 491-0686 or WQ9B {Jackie} at 262 544-1426. The talk-in will be on the MRC repeater {146.91 Mhz. minus offset. 127.3 PL}. There will be 3 Raffle Prizes and door prizes will be given out during the event. For more information browse the website **www.mrc91.org** or call Ken or Jackie. Vendors are welcome at 6:00 am.

RAFFEL PRIZES ARE:
FT 250R HT
FT1900R Mono Band Mobile
FT7900R DUAL Band Mobile
Raffle Tickets are $2.00 each or 3 for $5.00, Admission $6.00, Tables $10.00, Electricity $5.00.

Working Committees

Field Day

- Open

FM Simplex Contest

- Joe – N9UX
- Jeff-K9VS
- Dave-WA9WXN
- Brian-K9LCQ
- Sherm-KB9Q
- Mark-AB9CD

Ticket drum and drawing

- Tom – N9UFJ
- Jackie – No Call

Newsletter Editor

- Michael-KC9CMT

Webmaster

- Joe Schwartz—N9UX

Refreshments

- Michael – KC9CMT

Membership Information

The Hamateur Chatter is the newsletter of MRAC (Milwaukee Radio Amateurs' Club), a not for profit organization for the advancement of amateur radio and the maintenance of fraternalism and a high standard of conduct. MRAC Membership dues are $17.00 per year and run on a calendar year starting January 1st. MRAC general membership meetings are normally held at 7:00PM the last Thursday of the month except for November when Thanksgiving falls on the last Thursday when the meeting moves forward 1 week to the 3rd Thursday and December, when the Christmas dinner takes the place of a regular meeting. Club Contact Information Our website address **http://www.w9rh.org**

Telephone (414) 332-MRAC (6722)

Address correspondence to:

MRAC, PO Box 070695,

Milwaukee, WI 53207-0695.

Email may be sent to: **w9rh@arrl.net**

Our YAHOO newsgroup:

http://groups.yahoo.com/group/MRAC-W9RH/

CLUB NETS:

• Our Six Meter SSB net is Thursday at 8:00PM on 50.160 MHz USB

• Our Ten Meter SSB net is Friday at 8:00PM on 28.490 MHz ± 5 KHz USB.

• Our Two Meter FM net follows the Ten meter net at 9:00PM on our repeater at 145.390MHz - offset (PL 127.3)

Milwaukee Area Nets

Mon.8:00 PM 3.994 Tech Net

Mon.8:00 PM 146.865- ARES Walworth ARRL News Line

Mon.8:00 PM 146.445 Emergency Net

Mon.8:00 PM 146.865- ARES Net Walworth

Mon.8:45 PM 147.165- ARRL Audio News

Mon. 9:15 PM 444.125+ Waukesha ARES Net

Mon.9:00 PM 147.165- Milwaukee County ARES Net

Tue.9:00 AM 50.160 6 . Mtr 2nd Shifter's Net

Tue. 7:00 PM 145.130 MAARS Trivia Net

Tue. 8:00 PM 7.035 A.F.A.R. (CW)

Wed. 8:00 PM 145.130 MAARS Amateur Radio Newsline

Wed. 9:00 PM 145.130 MAARS IRLP SwapNet d FM-38 Repeaters (IRLP 9624)

Thur. 8:00 PM 50.160, 6 Mtr SSB Net

Thur. 9:00 PM 146.910 Computer Net

Fri. 8:30 PM 28.490 MRAC W9RH 10 Mtr Net SSB

Fri. 9:00 PM 145.390 W9RH 2 Mtr. FM Net

Sat. 9:00 PM 146.910 Saturday Night Fun Net

Sun 8:30 AM 3.985 QCWA (Chapter. 55) SSB Net

Sun 9:00 AM 145.565 X-Country Simplex Group

Sun 8:00 PM 146.91 Information Net

Sun 8:00 PM 28.365 10/10 International Net (SSB)

Sun 9:00 PM 146.91 Swap Net

2 meter repeaters are offset by 600KHz - - 70 centimeter repeaters are offset by 5 MHz

SSB frequencies below 20 meters are LSB and for 20 Mtr and above are USB.